

# Misadventures in Health Care

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# Misadventures in Health Care

- Considering error is relatively new  
Medication errors 1959 (Safren & Chapanis)
- Care ongoing, urgency to “solve” the problem.
- Source of problem.

# Health Care

- Trauma
- Acute care
- Outpatient care
- Ongoing home care
- Episodic home care
- Chronic care

# Source of misadventure, incidents, accidents

- Transportation or industry attributed to the organization, system.
- Health care almost always attributed to the care provider.

# Care providers

- Family and friends
- Pharmacist
- Professional care provider
  - Nurses
  - Physicians
  - Allied health professionals
- Skilled and home care aides

# Source of Error – Professional Care Provider

- Media reporting –
  - Incompatible organs transplanted
  - Wrong medication
- Self attribution
  - Worship of technology
  - Person accommodate to device

# Institute of Medicine Report

*To err is human*

Major recommendation – to establish a national error reporting data base.

Millions of \$s to elicit reporting of who did what.

# You get what you look for

- Presumptions determine findings
- To err is human
- Reporting systems collect data on human errors

# The vial, the fly, & the dog

- Drug vial – identical vials and labels except for drug name
- Fly – carrion odor place to lay eggs
- Australian Shepherd – heard sheep

Train: person to see in dim light

fly to lay eggs only on carrion

dog to herd only sheep

# Lesson of the vial, fly, & dog

- Error is not unique to humans
- Living organisms respond to factors in the conditions of activity
- Factors can make the conditions complex
- Complexity not in harmony with the organism tends to induce error.

# Humans have hard-wired responses to factors

- Perceptual capabilities
- Stress – fight or flight
- Fatigue – compromised cognitive functioning
- Information – 7 (+/minus 2) units
- Similarity – substitution

# Conditions and the provider

- The most technologically sophisticated medical devices are in the ICU, ER, and OR.
- The most stressful, fatigue inducing, information overloaded, with similar alarms, drug, vials, etc conditions are the ICU, ER, OR.

# Health Care: Unique Problems

- No aspect is static.
- Universe of participants, training, settings.
- Non-care providers know vaguely at best what transpires when care is given.
- Condition of entities changes and is changed by care being given.

Misadventures are defined in terms of

What happened

Adverse outcome:

Wrong blood administered

Wrong leg amputated

# Defining Error

- Error as outcome – serious injury, death, prolonged treatment
- Reported to Data Base:
  - Who – Ima Surgeon
  - What – Lacerated Mrs. Patient's liver

# Focus of Health Care Research

- Reflects presumption that person is the cause of the error.
- No actual experience of health care provider.
- Provider is reasonable explanation, so stop search at person – *STOP RULE* (Rasmussen, 1990).

# Error as a snapshot

- Consider act that precipitated adverse outcome

- Act is not isolated

Precursor conditions

Incidents waiting to happen

Series of events

- Time must be considered

# Error Reporting Data Base

Lonely datum.

If clustered, aggregated, then  
eggs in a carton.

Decision of Accountability:

Accountable for what – **behavior.**

# Error as Behavior

Bridge to research & theory of discipline that studies behavior, psychology.

- Behavior is interaction of the person and the environment (Lewin, 1936/1966).
- An action as everything else must have a context.
- Decisions re accountability for error must consider factors in context

# Error Research Findings:

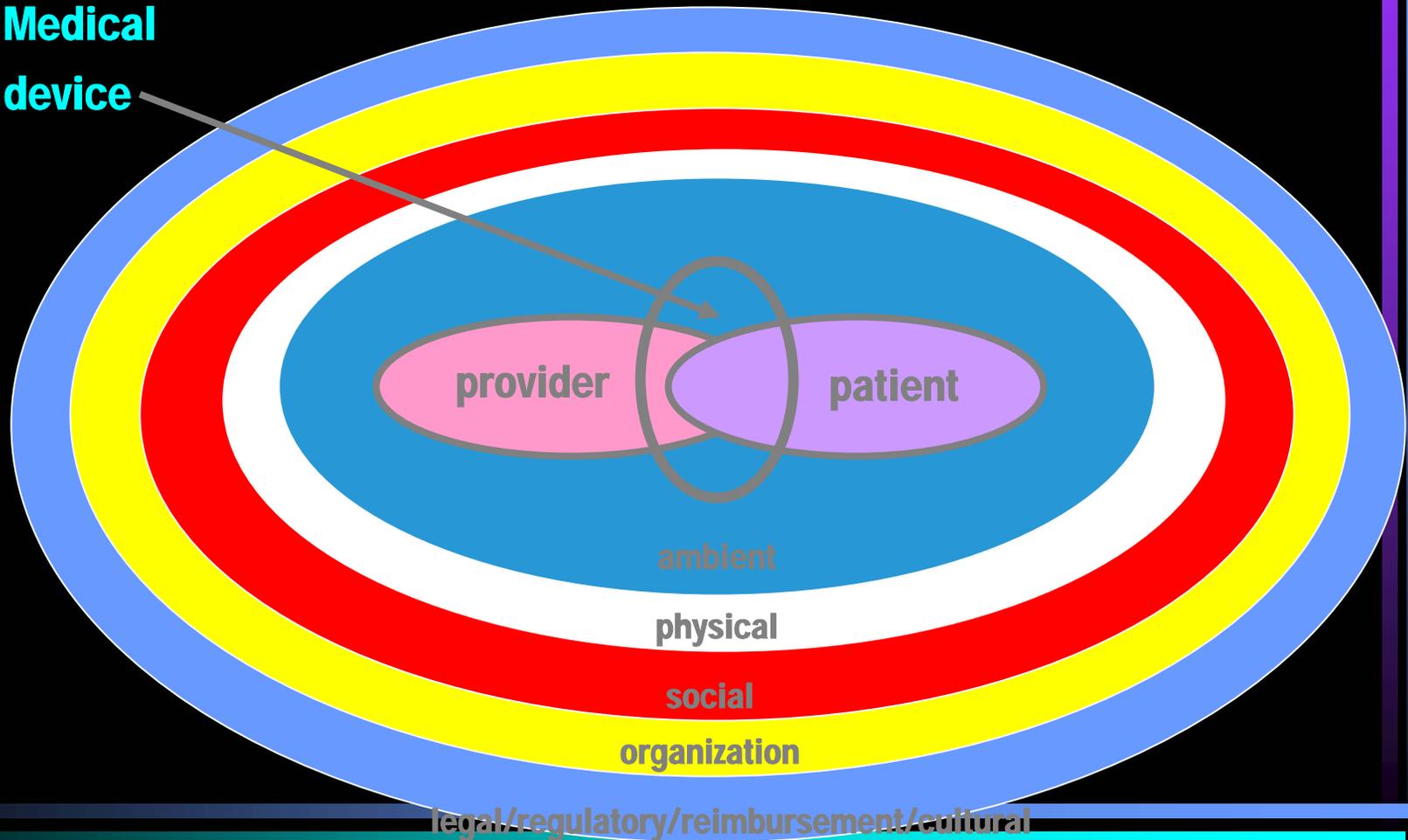
- Taxonomy of various industries (Rasmussen, 1982).
- Various industries (Senders & Moray, 1991).
- Nuclear Power (Rasmussen in Bogner (Ed.), 1994).
- Onion graphic representations (Moray in Bogner (Ed.), 1994).

# Lessons Learned: Error Provoked by Contextual Factors

- Personal characteristics
- Equipment design
- Task characteristics
- Physical environment
- Climate
- Team and group behavior
- Org. and management behavior
- Societal and cultural pressures

# Artichoke Model of Systems of Context of Performance

Medical  
device

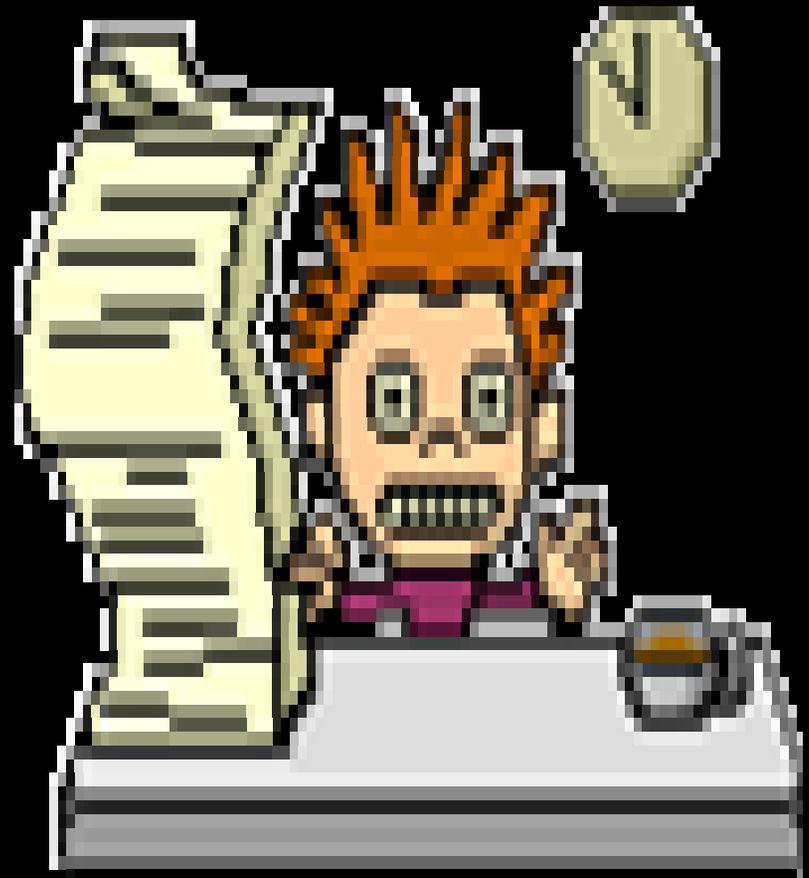


# Systems In Action

Factors in the  
context of  
systems

Impact the  
person

Can provoke  
error



# Systems Affect the Provider

Factors  
experienced by  
the provider at  
the time of an  
action.



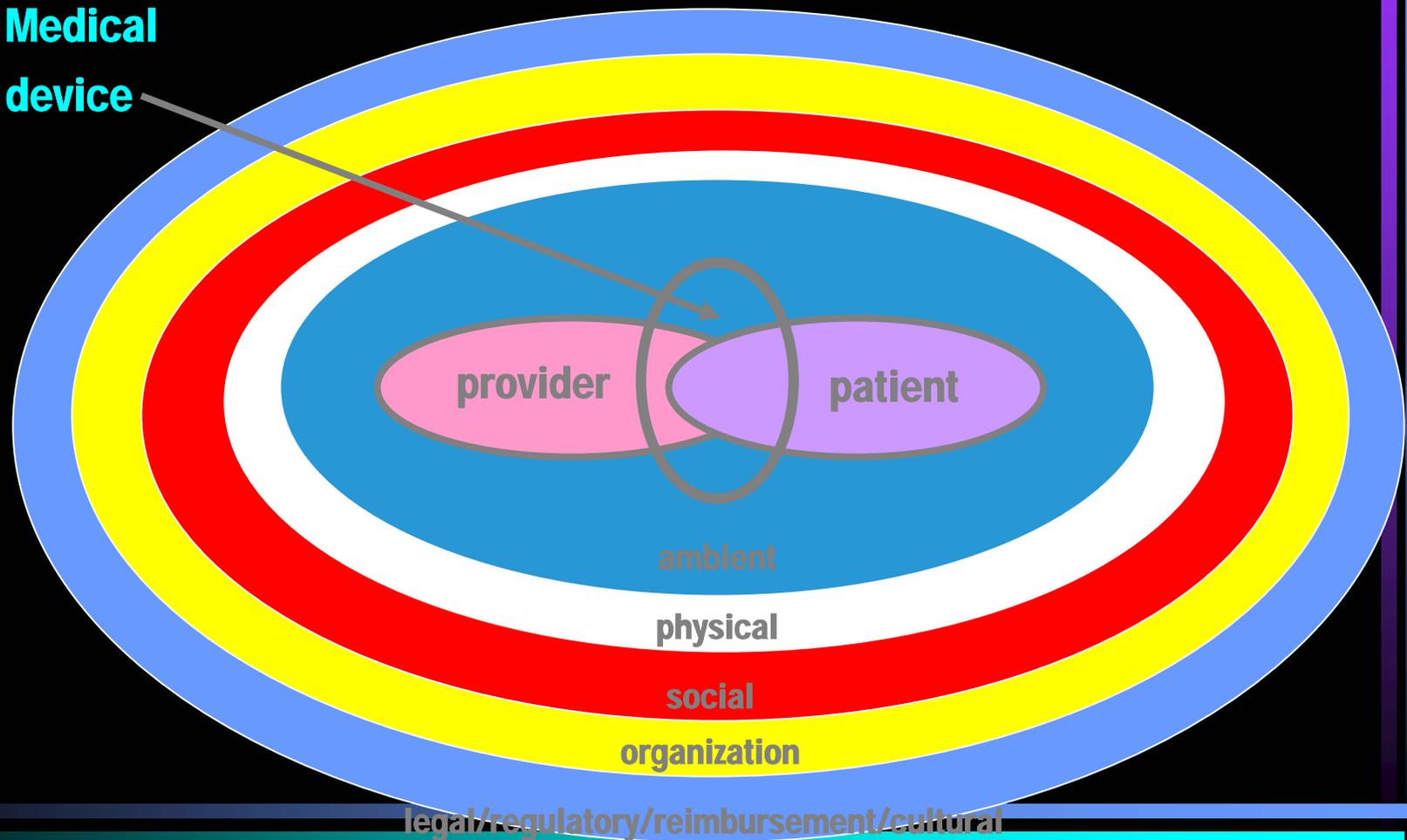
# Reverse Ripple

A change in factors in a system:

- affects all systems within its circumference which
- affects the care provider.

# Artichoke Model of Systems of Context of Performance

Medical  
device



# Incident Report (actual, almost, potential)

Incident:

Time:

Location:

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## **System or Context**

## **Factors**

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Legal-regulatory-reimbursement-cultural

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Organization

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Social

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Physical

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Ambient

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Care provider

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Means of providing care

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Patient

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# Laparoscopic Surgery



# ERROR: Ima Surgeon lacerated Mrs. Patient's liver (Matern, 2003)

- Lost balance on stool.
- Foot pedal for device fell off stool.
- Stool because too short to use instruments.
- Pt. Weighs 400 pounds.
- Operating table didn't go down enough.
- Regulatory agency didn't regulate.

It is one thing to show people they are in an error, and another to put them in possession of truth.

John Locke (1632-1704) *An Essay Concerning Human Understanding*,  
Bk. IV, Ch. 7

# Peel the Artichoke to reduce error and enhance safety

“Truth” by considering each of the 8 systems of context for error inducing factors.

